

<b>FORM PTO - 1449</b>  <b>INFORMATION DISCLOSURE STATEMENT</b>				ATTY DOCKET NO.: SYP-116 (7783/109) APPLICANT: FUCHS et al. SERIAL NO.: 08/726,093 FILING DATE: Oct. 4, 1996      GROUP: 1816 <sup>1809</sup>				
<b>U.S. PATENT DOCUMENTS</b>								
EXAM. INIT.	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE		
AM	AA	4,581,333	4/8/86 <del>Kourilsky</del> Kourilsky et al.	435	6			
AM	AB	4,582,789	4/15/86 Sheldon, III et al.	435	6			
AM	AC	4,617,261	10/14/86 Sheldon, III et al.	435	6			
AM	AD	4,683,195	7/28/87 Mullis et al.	435	6			
AM	AE	4,687,732	8/18/87 Ward et al.	435	6			
AM	AF	4,716,106	12/29/87 Chiswell	435	6			
AM	AG	4,737,454	4/12/88 Dattagupta et al.	435	6			
AM	AH	4,780,405	10/25/88 Kaiser et al.	435	6			
AM	AI	4,806,546	2/21/89 Carrico et al.	536	27			
AM	AJ	5,149,625	9/22/92 Church et al.	435	6			
<b>FOREIGN PATENT DOCUMENTS</b>								
EXAM. INIT.	DOCUMENT NUMBER	DATE	COUNTRY CODE	CLASS	SUB CLASS	FILING DATE	ABSTRACT ONLY	ENGLISH LANG Y/N
AM	BA	WO 96/06189	2/29/96	PCT				
AM	BB	WO 95/14708	6/1/95	PCT				
AM	BC	WO 95/15974	6/15/95	PCT				
AM	BD	WO 92/20236	10/14/93	PCT				
AM	BE	WO 92/20702	11/26/92	PCT				
AM	BF	WO 92/20703	11/26/92	PCT				
<b>OTHER ART, JOURNAL ARTICLES, ETC.</b>								
EXAM. INIT.	OTHER DOCUMENTS: (Including Author, Title, Date, Relevant Pages, Place of Publication)							
AM	CA	Almarsson, Ö. et al.; "Peptide Nucleic Acid (PNA) Conformation and Polymorphism in PNA-DNA and PNA-RNA Hybrids"; PROC. NATL. ACAD. SCI. USA, Vol. 90, pp. 9542-9546; (1993).						
EXAMINER <i>Andr M. Malachuk</i>				DATE CONSIDERED <i>8/8/97</i>				

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<b>OTHER ART, JOURNAL ARTICLES, ETC.</b>		
AM	CB	Almarsson, Ö. et al., "Molecular Mechanics Calculations of the Structures of Polyamide Nucleic Acid DNA Duplexes and Triple Helical Hybrids"; PROC. NATL. ACAD. SCI. USA, Vol. 90, pp. 7518-7522; (August, 1993).
AM	CC	Ansorge, W., et al., "Automated DNA sequencing: ultrasensitive detection of fluorescent bands during electrophoresis"; NUCLEIC ACIDS RESEARCH, Vol. 15, No. 11, pp. 4593-4602 (1987).
AM	CD	Bergmann, F. et al., "Solid Phase Synthesis of Directly Linked PnA-DNA-Hybrids"; TETRAHEDRON LETTERS <b>36</b> , 6832-6826 (1995).
AM	CE	Betts, L. et al., "A nucleic acid triple helix formed BY A peptide nucleic acid-DNA complex", SCIENCE <b>270</b> , 1838-1841 (1995).
AM	CF	Boffa, L. C. et al., "Isolation of active genes containing CAG repeats by DNA strand invasion by a peptide nucleic acid, PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, U.S.A. <b>92</b> , 1901-1905 (1995).
AM	CG	Böhler, C. et al., "Template switching between PNA and RNA oligonucleotides, NATURE <b>376</b> , 578-581 (1995).
AM	CH	Borman, S., "Developers of Novel DNA Sequencers Claim Major Performance Advances", C&EN; p. 37; (July 24, 1995).
AM	CI	Boyle, Ann. et al., "Labeling and Colorimetric Detection of Nonisotopic Probes", CURRENT PROTOCOLS IN MOLECULAR BIOLOGY, Vol. 1, pp. 3.18.1 - 3.18.9 (1992).
AM	CJ	Brown, S. C., et al., "NMR solution structure of a peptide nucleic acid complexed with RNA", SCIENCE <b>265</b> , 777-780 (1994).
AM	CK	Buchardt, O. et al., "Peptide nucleic acids and their potential applications in biotechnology"; TRENDS BIOTECH, Vol. 11, pp. 384-386, (September 1993).
AM	CL	Carlsson, C. et al; "Screening for genetic mutations", NATURE, Vol. 380, Issue no. 6571, p. 207 (March 21, 1996).
AM	CM	Chehab, F.F. et al.; "Detection of specific DNA sequences by fluorescence amplification: A color complementation assay"; PROC. NATL. ACAD. SCI. USA, Vol. 86, pp. 9178-9182; (December 1989).
AM	CN	Chen, Jun Wei, et al. "Identification of DNA molecules by pre-column hybridization using capillary electrophoresis", JOURNAL OF CHROMATOGRAPHY, Vol. 559, pp. 295-305 (1991).
AM	CO	Cherny, D.Y. et al.; "DNA Unwinding Upon Strand-displacement binding of a Thymine-substituted Polyamide to Double-stranded DNA", PROC. NATL. ACAD. SCI. USA, Vol. 90, pp. 1667-1670, (1993).
AM	CP	Chollet, André, et al., "Biotin-labeled synthetic oligodeoxyribonucleotides: chemical synthesis and uses as hybridization probes", NUCLEIC ACIDS RESEARCH, Vol. 13, No. 5, pp. 1529-1541 (1985).
EXAMINER <i>A. M. Mansch</i>		DATE CONSIDERED <i>8/8/97</i>

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<b>OTHER ART, JOURNAL ARTICLES, ETC.</b>		
AM	CQ	Christensen, L. et al.; <i>"Improved Synthesis, Purification and Characterization of PNA Oligomers"</i> , in <i>"Innovation and Perspectives in Solid Phase Synthesis and Complementary Technologies - Biological and Biomedical Applications"</i> , 3rd SPS OXFORD SYMPOSIA BOOK. pp. 149 (1994).
AM	CR	Cohen, J., <i>"Getting all turned around over the origins of life on earth"</i> , SCIENCE <b>267</b> , 1265-1266 (1995).
AM	CS	Corey, D.R. et al., <i>"Accelerated hybridization of Peptide Nucleic Acid oligomers to targeted sequences within duplex DNA"</i> , FASEB JOURNAL, <b>9</b> , A1391, # 784 (1995).
AM	CT	Davis, L.M. et al., <i>"Rapid DNA Sequencing Based Upon Single Molecule Detection"</i> ; GATA, <b>8</b> (1), pp. 1-7, (1991).
AM	CU	Demers, D.B. et al. <i>"Enhanced PCR Amplification of VNTR Locus D1S80 Using Peptide Nucleic Acid (PNA)"</i> , NUCLEIC ACIDS RESEARCH, Vol. 23, No. 15, pp. 3050-3055, (1995).
AM	CV	Demidov, V. et al.; <i>"Sequence Selective Double Strand DNA Cleavage by Peptide Nucleic Acid (PNA) Targeting Using Nuclease S1"</i> ; NUCLEIC ACIDS RESEARCH, Vol. 21, No. 9, pp. 2103-2107; (1993).
AM	CW	Demidov, V.V. et al., <i>"Kinetics and mechanism of polyamide ("peptide") nucleic acid binding to duplex DNA"</i> , PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, U.S.A. <b>92</b> , 2637-2641 (1995).
AM	CX	Demidov, V.V. et al., <i>"Electron Microscopy mapping of oligopurine tracts in duplex DNA by Peptide Nucleic Acid targeting"</i> , NUCLEIC ACIDS RESEARCH <b>22</b> , 5218-5222 (1994).
AM	CY	Dueholm, K.L. et al., <i>"Peptide Nucleic Acid (PNA) with a chiral backbone based on alanine"</i> , BIOORG. & MED. CHEM. LETT. <b>4</b> , 1077-1080 (1994).
AM	CZ	Egholm, M. et al.; <i>"Peptide Nucleic Acids (PNA). Oligonucleotide Analogues with an Achiral Peptide Backbone"</i> , J. AM. CHEM. SOC., <b>114</b> , 1895-1897, (1992).
AM	DA	Egholm, M. et al.; <i>"PNA Hybridizes to Complementary Oligonucleotides Obeying the Watson-Crick Hydrogen-bonding Rules"</i> , NATURE, <b>365</b> , pp. 566-568 (1993).
AM	DB	Egholm, M. et al., <i>"Peptide Nucleic Acids (PNA) Containing All Four Nucleobases"</i> , JOURNAL OF CELLULAR BIOCHEMISTRY, Keystone Symposia on Molecular & Cellular Biology, Supplement 17E, p. 12 - Abstract S406, (March 29 - April 25, 1993).
AM	DC	Egholm, M. et al., <i>"Recognition of guanine and adenine in DNA by cytosine and thymine containing peptide nucleic acids"</i> , JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, <b>114</b> , 9677-9678 (1992)
AM	DD	Egholm, M. et al., <i>"Peptide Nucleic Acids (PNA): A novel approach to sequence-selective recognition of double-stranded DNA"</i> , INNOVATION AND PERSPECTIVES IN SOLID PHASE SYNTHESIS-PEPTIDES, POLYPEPTIDES AND OLIGONUCLEOTIDES, 325-328 (1992).
AM	DE	Egholm, M. et al., <i>"Peptide nucleic acids containing adenine or guanine recognize thymine and cytosine in complementary DNA sequences"</i> , JOURNAL OF THE CHEMICAL SOCIETY, CHEMICAL COMMUNICATIONS, 800-801 (1993).
EXAMINER <i>Andin Marschel</i>		DATE CONSIDERED <i>8/8/97</i>

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AM	DF	Egholm, M. et al., "Efficient pH-independent sequence-specific DNA binding by pseudoisocytosine-containing bis PNA", NUCLEIC ACIDS RESEARCH <b>23</b> , 217-222 (1995).	
AM	DG	Eigen, M. et al., "Sorting single molecules: Application to diagnostics and evolutionary biotechnology", PROC. NATL. ACAD. SCI. USA, Vol. 91, pp. 5740-5747 (June 1994).	
AM	DH	Flam, F., "Can DNA Mimics Improve on the real thing?", SCIENCE <b>262</b> , 1647-1649 (1993).	
AM	DI	Fung, Eliza N., et al., "High-Speed DNA Sequencing by Using Mixed Poly(ethylene oxide) Solutions in Uncoated Capillary Columns", ANALYTICAL CHEMISTRY, Vol. 67, No. 13, pp. 1913-1919 (July 1, 1995).	
AM	DJ	Griffith, M.C. et al., "Single and Bis Peptide Nucleic Acids as triplexing agents: Binding and stoichiometry", JOURNAL OF THE AMERICAN CHEMICAL SOCIETY <b>117</b> , 831-832 (1995).	
AM	DK	Hanvey, J.C. et al., "Antisense and antigene properties of peptide nucleic acids", SCIENCE, <b>258</b> , 1481-1485 (1992).	
AM	DL	Hyrup, B. et al., "Structure-Activity studies of the binding modified Peptide Nucleic Acids", JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, <b>116</b> , 7964-7970 (1994).	
AM	DM	Il'cheva, A.A. et al., "PNA Complexes of Polynucleotides and polyamides: Structure of Two- and Three-Stranded Chimeric Helices Revealed by Conformation Analysis", INT. J. QUAT. CHEM. <b>21</b> , 157-172 (1994).	
AM	DN	Kastrup, J.S. et al., "Crystallization and preliminary X-ray analysis of a PNA-DNA complex", FEBS LETT. <b>363</b> , 115-117 (1995).	
AM	DO	Kim, S.K. et al., "Right-handed triplex formed between Peptide Nucleic Acid PNA-T8 and Poly(dA) shown by linear and circular dichroism spectroscopy", JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, <b>115</b> , 6477-6481 (1993).	
AM	DP	Lagriffoul, P.-H. et al., "The Synthesis, co-oligomerization and hybridization of a thymine-thymine heterodimer containing PNA", BIOORG. & MED. CHEM. LETT. <b>4</b> , 1081-1082 (1994).	
AM	DQ	Leijon, et al., "Structural Characterization of PNA-DNA Duplexes by NMR. Evidence for DNA in a B-like Conformation", BIOCHEMISTRY <b>33</b> , 9820-9825 (1994).	
AM	DR	Li, Qingbo et al., "Evaluation of the Potential of a Charge-Injection Device for DNA Sequencing by Multiplexed Capillary Electrophoresis", APPLIED SPECTROSCOPY, Vol. 49, No. 6, pp. 825-832 (1995).	
AM	DS	Lohse, J. et al., "Sequence selective DNA cleavage by PNA-NTA conjugates", DNA AND RNA CLEAVERS AND CHEMOTHERAPY OF CANCER AND VIRAL DISEASES, 133-141 (1996).	
AM	DT	Lu, Xiandan et al., "Optimization of Excitation and Detection Geometry for Multiplexed Capillary Array Electrophoresis of DNA Fragments", APPLIED SPECTROSCOPY, Vol. 49, No. 5, pp. 605-609 (1995).	
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AM	DU	Mayer, P. et al. "Theory of DNA Sequencing Using Free-Solution Electrophoresis of Protein-DNA Complexes"; ANALYTICAL CHEMISTRY, Vol. 66, No. 10, pp. 1777-1780 (May 15, 1994).	
AM	DV	Meier, C. et al. "Peptide Nucleic Acids (PNAs) - Unusual Properties of Nonionic Oligonucleotide Analogues"; ANGEW. CHEM. INT. ED. ENGL. 31, No. 8, pp. 1008-1010 (1992).	
AM	DW	Mollegaard, N.E. et al., "Peptide nucleic acid-DNA strand displacement loops as artificial transcription promoters", PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, U.S.A. 91, 3892-3895 (1994).	
AM	DX	Nielsen, P.E. et al.; "Sequence-Selective Recognition of DNA by Strand Displacement with a Thymine-Substituted Polyamide", SCIENCE, Vol. 254, pp. 1497-1500; (6 December 1991).	
AM	DY	Nielsen, P.E. et al.; "Sequence-Selective Recognition of DNA by Peptide Nucleic Acid Chimerae (PNA)", CLINICAL CHEMISTRY, Vol. 39, No. 4, p. 715; (1993).	
AM	DZ	Nielsen, Peter E. et al., "Sequence specific inhibition of DNA restriction enzyme cleavage by PNA", NUCLEIC ACIDS RESEARCH, Vol. 21, No. 2, pp. 197-200 (1993).	
AM	EA	Nielsen, P.E. et al., "Peptide nucleic acids (PNA): Oligonucleotide analogues with a polyamide backbone", ANTISENSE RESEARCH AND APPLICATIONS, 363-372 (1992)	
AM	EB	Nielsen, P.E. et al., "Peptide nucleic acids (PNAs): Potential Antisense and Anti-gene Agents", ANTI-CANCER DESIGN, 8, 53-63 (1993).	
AM	EC	Nielsen, P.E. et al., "Peptide Nucleic Acid (PNA). A DNA mimic with a peptide backbone.", BIOCONJUGATE CHEMISTRY 5, 3-7 (1994)	
AM	ED	Nielsen, P.E. et al., "Evidence for (PNA) <sub>2</sub> /DNA triplex structure upon binding of PNA to dsDNA by strand displacement", J. MOL. RECOG 7, 165-170 (1994).	
AM	EE	Nielsen, P.E. et al., "Sequence-specific transcription arrest by peptide nucleic acid bound to the DNA template strand", GENE 149, 139-145 (1994)	
AM	EF	Nielsen, P.E., "DNA analogues with nonphosphodiester backbones", ANNU. REV. BIOPHYS. BIOMOL. STRUCT. 24, 167-183 (1995).	
AM	EG	Ørum, H. et al.; "Single base pair mutation analysis by PNA directed PCR clamping"; NUCLEIC ACIDS RESEARCH, Vol. 21, No. 23, pp. 5332-5336, (1993).	
AM	EH	Ørum, H. et al.; "Sequence specific purification of nucleic acids by PNA controlled hybrid selection"; BIOTECHNIQUES 19, 472-480 (1995)	
AM	EI	Patel, D.J., "Marriage of convenience". NATURE, 365, 490-492 (1993).	
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AM	EK	Peffer, N.J. et al., "Strand-invasion of duplex DNA by peptide nucleic acid oligomers", PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, U.S.A., 90, 10648-10652 (1993).	
<b>EXAMINER</b> <i>Adam M. M...</i>		<b>DATE CONSIDERED</b> 8/8/97	

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<b>OTHER ART, JOURNAL ARTICLES, ETC.</b>		
AM	EL	Perry-O'Keefe, H., et al., "Chemiluminescent Detection of Nonisotopic Probes", CURRENT PROTOCOLS IN MOLECULAR BIOLOGY, Vol. 1, pp. 3.19.1 - 3.19.8, (1992).
AM	EM	PerSeptive Biosystems Biosearch Products, "Identifying Point Mutations by PNA-Directed PCR Clamping", PRACTICAL PNA, Vol. 1, Issue 1 (1995)
AM	EN	PerSeptive Biosystems, Inc., "PNA Oligomers as Hybridization Probes" PRACTICAL PNA, Vol. 1(2), (1995).
AM	EO	"PerSeptive Develops a Rapid Alternative to Southern Blot", GENETIC ENGINEERING NEWS, Vol. 17, No. 1, (January 1, 1997).
AM	EP	Pluskal, et al. "Peptide Nucleic Acid Probes and Their Application in DNA and RNA Blot Hybridization Analysis", THE FASEB JOURNAL, Vol. 8, No. 7, p. A1264, abstract 35; (May 3, 1994).
	<del>EQ</del>	<del>Rose, D.J., "Characterization of Antisense Binding Properties of Peptide Nucleic Acids by Capillary Gel Electrophoresis", ANAL. CHEM., 65, 3545-3549, (1993)</del>
AM	ER	Sambrook, J. et al., "Molecular Cloning, A LABORATORY MANUAL", Cold Spring Harbor Laboratory Press, Second Edition, pp. 9.31-9.32, (1989).
AM	ES	Schwartz, Alan W., "The origin of macromolecular chirality", CURRENT BIOLOGY, Vol. 4, No. 8, pp. 758-760 (1994).
AM	ET	Smith, Lloyd M., et al., "The synthesis of oligonucleotides containing an aliphatic amino group at the 5' terminus: synthesis of fluorescent DNA primers for use in DNA sequence analysis", NUCLEIC ACIDS RESEARCH, Vol. 13, No. 7, pp. 2399-2412 (1985).
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AM	EV	Wittung, P. et al. "DNA-like Double Helix Formed by Peptide Nucleic Acid", NATURE, Vol. 368, pp. 561-563, (April 7, 1994).
AM	EW	Wittung, P. et al, "Interactions of DNA binding ligands with PNA-DNA hybrids", NUCLEIC ACID RESEARCH 22, 5371-5377 (1994).
AM	EX	Zapolski, E.J. et al.; "A system for automated DNA electrophoresis, molecular hybridization and electronic detection: I Electrophoresis and hybridization"; ELECTROPHORESIS, Vol. 8, pp. 255-261, (1987).
AM	EY	Norton, J.C. et al., "Targeting Peptide Nucleic Acid-Protein Conjugates to Structural Features Within Duplex DNA", BIOORGANIC & MEDICINAL CHEMISTRY, 8, No. 4, pp. 437-445 (1995).
EXAMINER <i>Adrian Marschke</i>		DATE CONSIDERED <i>8/8/97</i>